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Two New Species of *Eutheia* Stephens (Insecta, Coleoptera, Scydmaenidae) from Japan

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Abstract Two new species of *Eutheia* Stephens are described under the names *E. rufa* sp. nov. and *E. horii* sp. nov. The two species have been discovered in Hokkaido, Japan, and can be distinguished from all other congeners by unique, relatively complicated design of male copulatory organs. Male habitus of *E. rufa*, as well as aedeagi and antennae of both species are illustrated.
Key words: Coleoptera, Scydmaenidae, new species, taxonomy, Japan.

Introduction

Two species of *Eutheia* Stephens have been described from Japan: *E. japonica* K. Sawada (1962), and *E. holzneri* Franz (1976). However, examination of the holotypes of both species revealed that they do not belong to this genus. Their generic position will be clarified in a separate paper (Jałoszyński & Hoshina, in preparation).

Recently, I have had the opportunity to study specimens of the Japanese Eutheiini, in major part preserved in the National Science Museum, Tokyo (NSMT). Most interesting material has been collected by Mr. Shigehisa Hori in Hokkaido by car netting. Two new species of *Eutheia* have been found this way, apparently during the same successful collecting session. They are described in the present paper as *Eutheia rufa* sp. nov. and *E. horii* sp. nov.

The type material is deposited in NSMT and in the private collection of the author (PCPJ).

Taxonomy

Genus ***Eutheia*** Stephens

Eutheia Stephens, 1830: 115 (attributed to Waterhouse). Type species: *Eutheia scydmaenoides* Stephens, 1830.

Euthia Agassiz, 1847: 152 (unjustified emendation of *Eutheia*).

Euthiopsis Müller, 1925: 17 (as subgenus of *Euthia*). Type species: *Eutheia* ventricosa Müller, 1925 (as synonym of *Eutheia* Stephens in Newton & Franz, 1998).

Taxonomic problems concerning unclear definition of *Eutheia* were mentioned and briefly discussed in a recent paper (Jałoszyński, 2003). The shape of vertex and the design of the aedeagus were proposed as unambiguous key characters to distinguish *Veraphis* Casey from *Eutheia*. In the present paper, these structures are used to redefine the latter genus.

Members of *Eutheia* can be identified on the basis of the following set of features: elongate, usually distinctly flattened body; vertex convex, with no pits neither grooves; maxillary palpomere III elongate; maxillary palpomere IV small but well visible, conical; mesosternal carina low (i.e. only slightly expanded ventrally), sometimes shortened; hind coxae broadly separated; apices of elytra truncate; aedeagus with voluminous, usually elongate basal capsule and sharply delimited, large apical part.

The genus comprises about thirty species distributed in the Palearctis, Nearctis, Nepal and the Oriental Region (Newton & Franz, 1998), a single species is known from the Neotropics (O'-Keefe, 1999).

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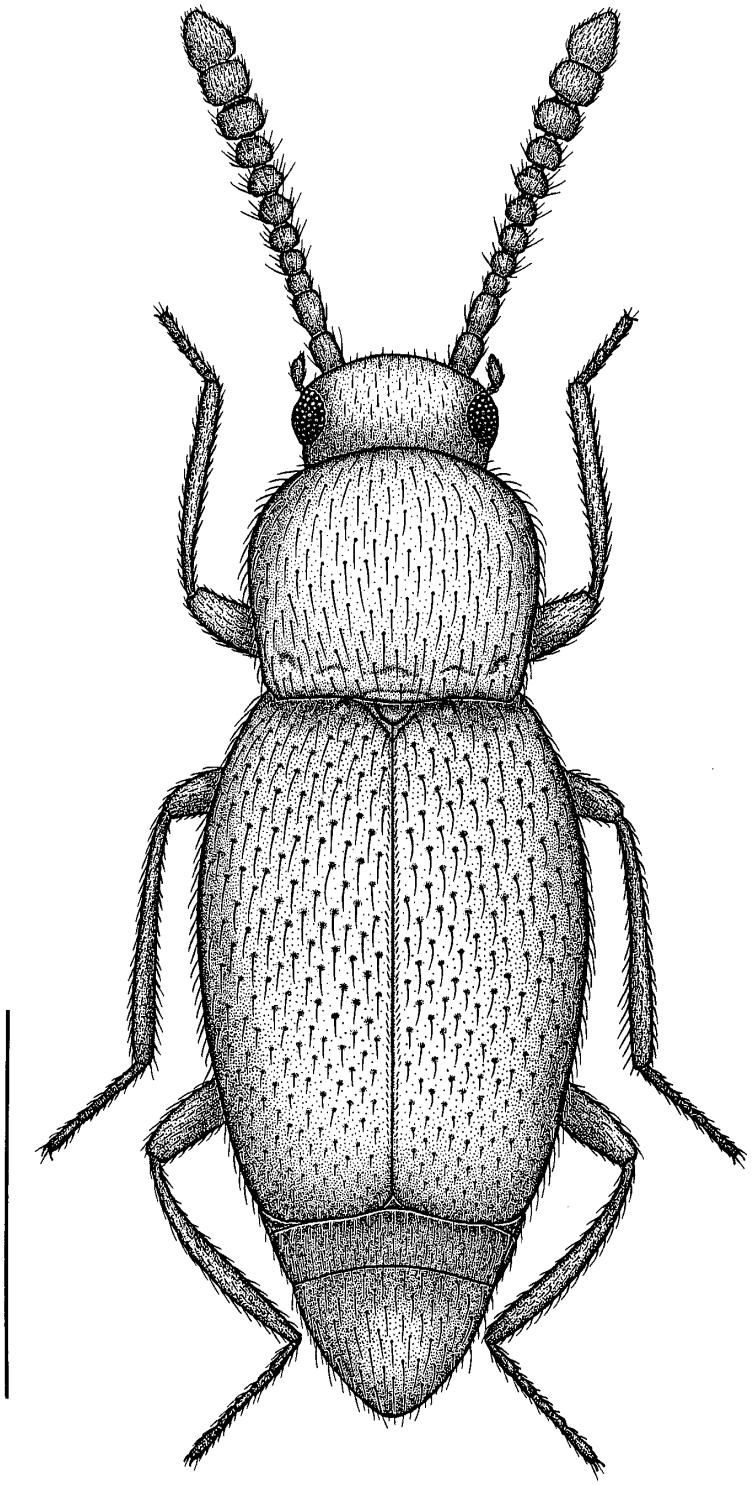

Fig. 1. *Eutheia rufa* sp. nov., habitus of male. Scale: 0.5 mm.

Eutheia rufa sp. nov.

(Figs. 1, 2A–D, 3A–E)

Diagnosis. *Eutheia rufa* can be identified on the basis of its uniformly rusty-brown body and the shape of the aedeagus.

Description. Body elongate, flat, rusty-brown, legs and palpi minimally lighter; setation short, yellowish.

Male (Fig. 1). Body length: 1.34 mm. Head broader than wide, widest at large, oval eyes (with slightly emarginate posterior margin),

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length: 0.15 mm, width: 0.26 mm. Tempora very short; vertex broad, slightly flattened in middle; supraantennal tubercles indistinct; frons trapezoidal. Punctation of vertex relatively sparse and fine, punctures on frons larger and denser, distributed unevenly and of various diameters; setation moderately long, suberect, composed of very thin setae. Antenna (Fig. 3D) moderately long (0.52 mm), with indistinct club composed of antennomeres IX–XI, antennomere XI with well visible, small circular excavation in internal latero-dorsal margin filled with short and dense setae.

Mouthparts not dissected; visible structures as those in female (described below).

Pronotum slightly broader than long, widest between anterior third and middle; length: 0.32 mm, maximum width: 0.37 mm, width at base: 0.32 mm. Anterior and lateral margins rounded, sides in posterior third finely serrated, hind angles obtuse, base slightly expanded posteriorly in middle, expanded part delimited by shallow transverse groove; five basal, moderately distinct pits present, lateral pair inversely U-shaped, internal pair and single median pit distinctly shallower. Punctation moderately dense, composed of relatively small but well visible punctures; setation moderately dense, relatively short, suberect.

Elytra long and flat, widest at middle, length: 0.67 mm, width: 0.5 mm, elytral index (EI; ratio length/combined width): 1.34. Humeri distinct, raised; internal humeral impression broad and shallow; basal fovea on each elytron small, adjacent to narrow, sharply delimited adscutellar area; scutellum triangular with pointed apex, posterior part slightly raised. Punctation of elytra moderately dense, composed of large but shallow and diffused punctures; setation short, moderately dense, suberect, additionally each elytron bears several hardly visible, short erect setae in posterior half and row of very short setae along suture. Hind wings well developed, about twice as long as elytra, with row of long and dense setae along posterior margin.

Pygidium about as long as wide at base, with fine punctation and sparse, short, slightly suberect setation.

Legs moderately long, slender, without any particular characters, pro- and mesotibiae straight, metatibiae slightly curved.

Aedeagus (Fig. 2A–C) symmetrical, large, 0.39 mm in length, with elongate, subcylindrical basal capsule not narrowing toward apex, and moderately complicated apical part. Ventral part of apical lobe bifurcate, dorsal part much shorter, with broadly emarginate apex. Parameres relatively thick in lateral view, relatively long, each with two long and two short hardly visible apical setae.

Female. Genders externally easily distinguishable by comparison of antennae. Females differ from the only known holotype male in the following features: body smaller but with slightly longer elytra; pronotum broader; antenna (Fig. 3E) shorter, with more distinct club and larger excavation in antennomere XI. Body length: 1.35–1.37 mm (mean: 1.35 mm), length of head: 0.15–0.16 mm (mean: 0.155 mm), width of head: 0.26–0.27 mm (mean: 0.27 mm), length of antenna: 0.51–0.52 mm (mean: 0.51 mm), length of pronotum: 0.3 mm, maximum width of pronotum: 0.4–0.41 mm (mean: 0.41 mm), width of pronotum at base: 0.36–0.37 mm (mean: 0.365 mm), length of elytra: 0.7–0.71 mm (mean: 0.7 mm), width of elytra: 0.51–0.52 mm (mean: 0.51 mm), EI: 1.37–1.36.

Mouthparts (Fig. 2A–D): Labrum (Fig. 2A) more than twice as broad as long, with rounded sides and slightly emarginate anterior margin; near emargination with transverse row of seven short setae, dorsal surface with twelve long setae distributed symmetrically on each side of single long median seta. Mandible (Fig. 2B) planar in lateral view, with broad base, very long, narrow and curved apical tooth pointed at apex, and with short, sharp subapical tooth; prostheca relatively small; dorsal surface along internal margin coarsely microsculptured, external margin with two long setae. Maxilla (Fig. 2C) composed of relatively large, triangular stipes with short seta (possibly two setae, one detached in the studied

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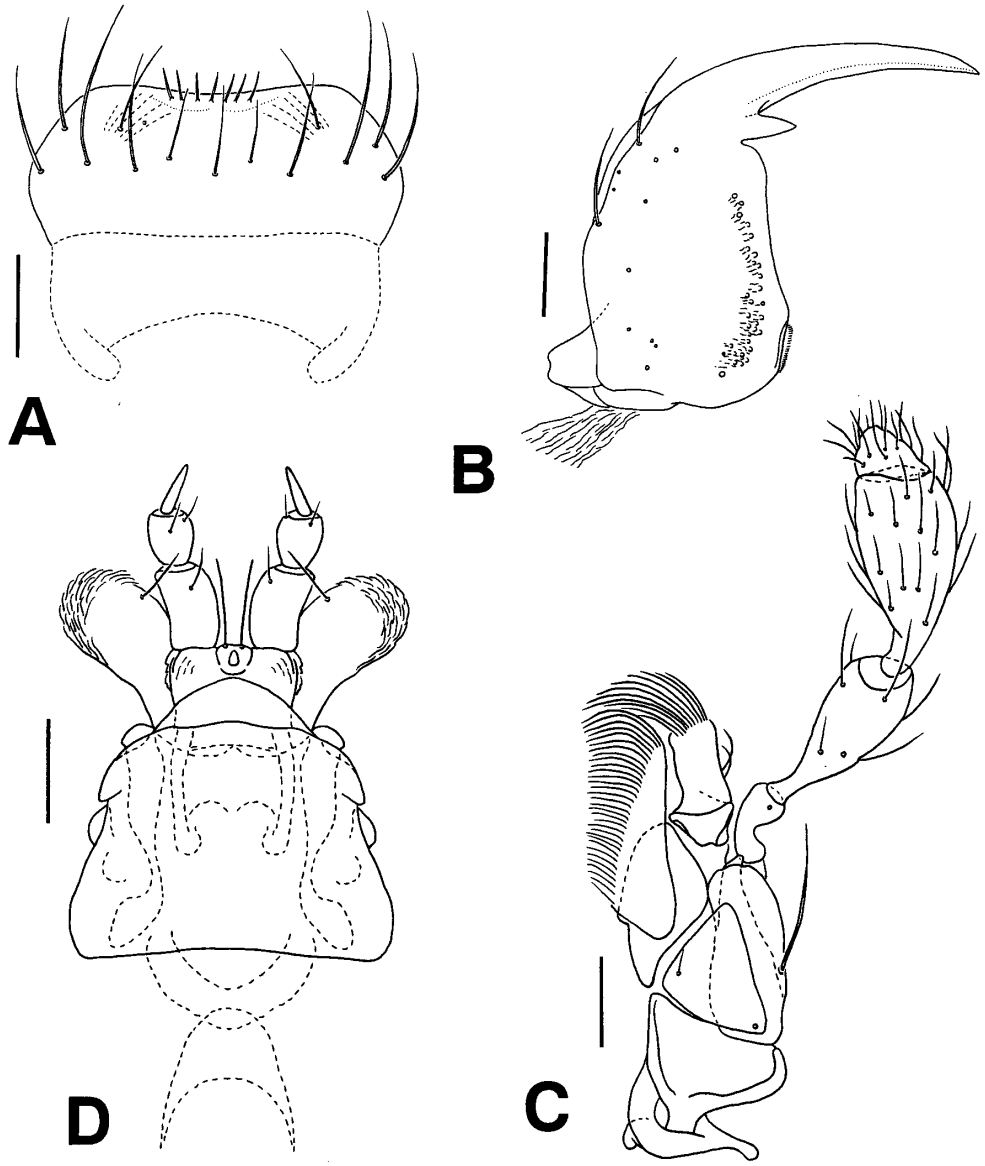

Fig. 2. *Eutheia rufa* sp. nov., female; labrum in dorsal view (A), left mandible in dorsal view (B), left maxilla in ventral view (C), labium in ventral view (D). Scale: 0.02 mm.

specimen); elongate palpifer with long seta on external margin; lacinia divided into subtriangular basal and elongate distal part, with dense row of long setae along internal margin; and elongate galea with two moderately long setae on external margin and row of dense and long setae along apical margin. Maxillary palpomere consists of small, elongate, curved and constricted in middle palpomere I, elongate, distally expanded palpomere II, moderately large, elongate palpomere III widest near distal third, and short, conical, well visible palpomere IV. Labium (Fig. 2D) with relatively large, subtrapezoidal mentum with small lateral notches and lobes; palpus labialis with elongate, subcylindrical palpomere I, short, subcylindrical palpomere II and elongate, fusiform palpomere III; hypopharynx well developed, with large lateral lobes.

Distribution. Japan: Hokkaido.

Holotype, ♂, Japan, Hokkaido, Mikuni Pass between towns Kamikawa and Horokanai, 29. vi. 2002, 4–7 p.m., by car netting, Shigehisa Hori leg. (NSMT). Paratypes: 4♀♀, same data as for holotype (NSMT, PCPJ).

Etymology. The name reflects the rusty-brown body coloration of this species.

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Eutheia horii sp. nov.

(Figs. 3F–I)

Diagnosis. This species is characteristic in having dark brown head and pronotum and distinctly lighter, reddish-brown elytra. Examination of the aedeagus is necessary for correct identification.

Description. Body slender and flat, head and major part of pronotal disc dark brown, margins of pronotum, elytra and pygidium reddish-brown, mouthparts, antennae and legs minimally lighter

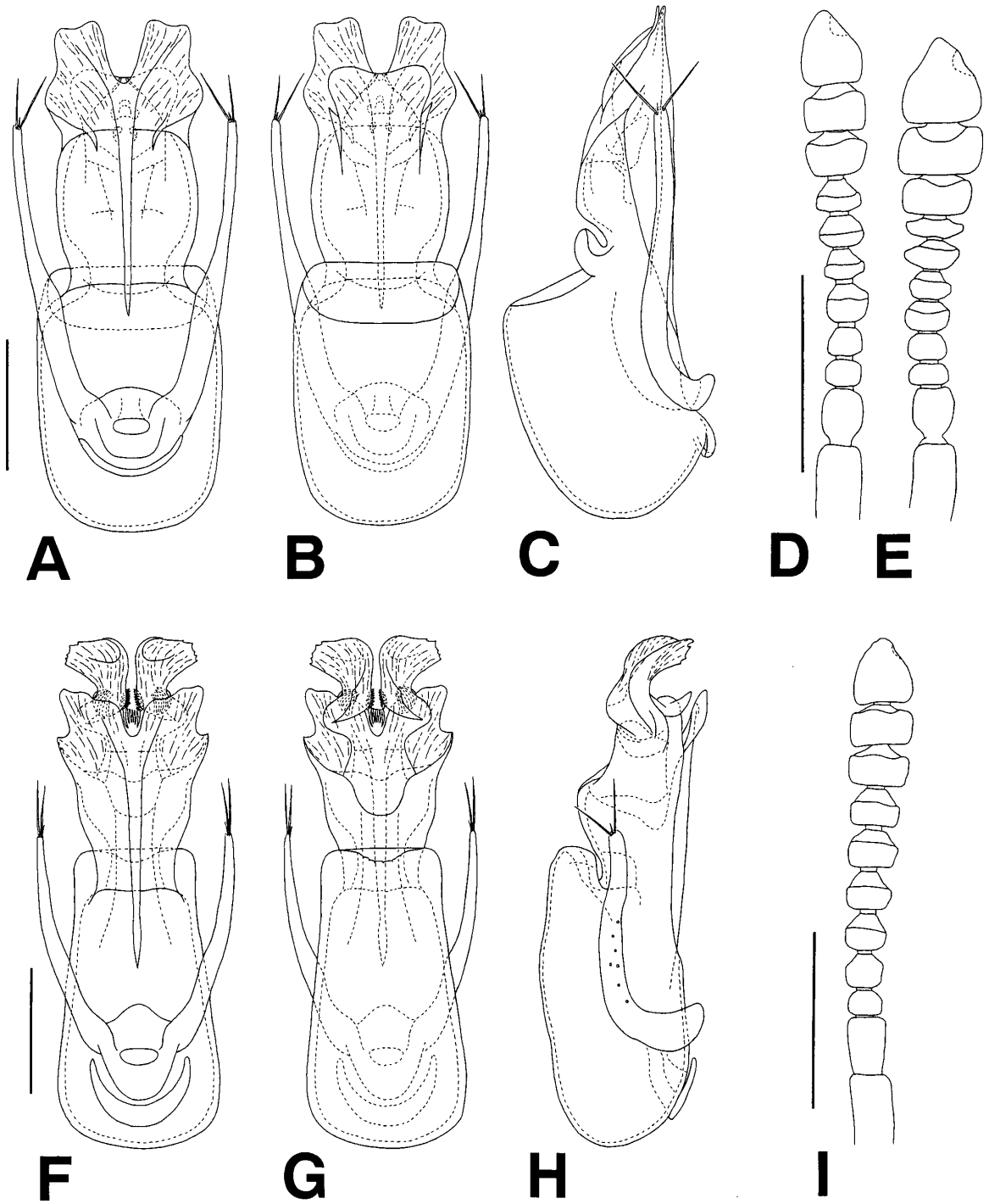

Fig. 3. *Eutheia rufa* sp. nov. (A–E) and *E. horii* sp. nov. (F–I); aedeagus in ventral (A, F), dorsal (B, G) and lateral (C, H) views, left antenna of male (D, I) and female (E) in dorsal view. Scale: 0.1 mm for A–C, F–H; 0.2 mm for D–E, I.

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than elytra. Setation relatively short, yellowish.

Male. Body length: 1.41 mm. Head broader than wide, widest at large, oval eyes (with slightly emarginate posterior margin), length: 0.16 mm, width: 0.26 mm. Tempora very short; vertex broad, flattened in middle, with slightly uneven surface; supraantennal tubercles indistinct; frons trapezoidal. Punctation of vertex and frons distinct, unevenly distributed, composed of punctures of various diameters; setation moderately long, suberect, composed of very thin setae. Antenna (Fig. 3I) relatively long (0.57 mm), gradually thickening toward apex, antennomere XI with hardly visible, very small and shallow circular impression in internal lateral margin.

Pronotum distinctly broader than long, widest between anterior third and middle, length: 0.3 mm, maximum width: 0.41 mm, width at base: 0.37 mm. Anterior and lateral margins rounded, sides in posterior third finely serrated, hind angles obtuse, base slightly expanded posteriorly in middle, expanded part delimited by shallow transverse groove; base with five moderately distinct pits, median pit shallower than remaining foveae and slightly elongate postero-anteriorly. Punctation relatively dense, composed of distinct punctures; setation moderately dense, relatively short, suberect.

Elytra long and flat, widest at middle, length: 0.75 mm, width: 0.54 mm, EI: 1.39. Humeri distinct, raised; internal humeral impression broad and shallow; basal fovea on each elytron small, adjacent to narrow, sharply delimited adscutellar area; scutellum triangular with pointed apex, posterior part slightly raised. Punctation of elytra moderately dense, composed of large but shallow and diffused punctures; setation short, moderately dense, suberect, additionally each elytron bears several hardly visible, short erect setae in posterior half and row of very short setae along suture. Hind wings well developed, about twice as long as elytra, with row of long and dense setae along posterior margin.

Pygidium about as long as wide at base, relatively finely punctate and covered with short, moderately dense, only slightly suberect setae.

Legs moderately long, slender, without any particular characters, all tibiae nearly straight.

Aedeagus (Fig. 3F–H) symmetrical, large, 0.42 mm in length, with elongate, subcylindrical basal capsule narrowing from base to apex, and complicated apical part. Both dorsal and ventral part of apical lobe bifurcate, dorsal part much longer than ventral. Parameres very thick in lateral view, relatively short, each with two long and one short apical setae.

Female. Unknown.

Distribution. Japan: Hokkaido.

Holotype, ♂, Japan, Hokkaido, Mikuni Pass between towns Kamikawa and Horokanai, 29. vi. 2002, 4–7 p.m., by car netting, Shigehisa Hori leg. (NSMT).

Etymology. This species is dedicated to Mr. Shigehisa Hori, who collected both new species described in this paper.

Discussion

Only five other species of *Eutheia* are known to occur in Southeast Asia. *Eutheia exortiva* and *E. horiola* were described by Serguei Kurbatov from the Russian Far East (Kurbatov, 1990, 1991); three remaining species inhabit Taiwan and were described by Herbert Franz: *E. klapperichi*, *E. simillima*, and *E. taiwanensis* (Franz, 1985). All of them have aedeagi distinctly different from those of the newly described species from Hokkaido; only *E. simillima* has clearly bifurcate apical part, as illustrated in the original description and confirmed during the present study by examination of a non-type male of this species. However, this Taiwanese *Eutheia* possesses very broad body and can be easily distinguished from all SE Asiatic congeners, which are much more slender. Also males of the Russian species were examined during this work (specimens kindly sent to me by Dr. Kurbatov). The body shape and coloration of *E. horiola* and *E. exortiva* is to some extent similar to that of *E. horii*, but examination of aedeagi (accurately illustrated in Kurbatov, 1990, 1991) allows for unambiguous identifications.

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